

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
 United States Patent and Trademark  
 Office  
 Box PCT  
 Washington, D.C.20231  
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

<b>Date of mailing (day/month/year)</b> 25 August 2000 (25.08.00)	
<b>International application No.</b> PCT/US99/29938	<b>Applicant's or agent's file reference</b> RCA89928
<b>International filing date (day/month/year)</b> 15 December 1999 (15.12.99)	<b>Priority date (day/month/year)</b> 11 January 1999 (11.01.99)
<b>Applicant</b> HOOVER, Alan, Anderson	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
 28 July 2000 (28.07.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<b>The International Bureau of WIPO</b> 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	<b>Authorized officer</b> Ingrid Aulich Telephone No.: (41-22) 338.83.38
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# PATENT COOPERATION TREATY

EXPRESS MAIL

EL 685391371 US

PCT

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

TRIPOLI, Joseph S.  
THOMSON MULTIMEDIA LICENSING INC.  
P.O. Box 5312  
Princeton, New Jersey 08543  
ETATS-UNIS D'AMERIQUE

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT  
(PCT Rule 71.1)

Date of mailing  
(day/month/year) 08.05.2001

Applicant's or agent's file reference  
RCA89928

## IMPORTANT NOTIFICATION

International application No.  
PCT/US99/29938

International filing date (day/month/year)  
15/12/1999

Priority date (day/month/year)  
11/01/1999

Applicant  
THOMSON CONSUMER ELECTRONICS, INC. et al.

changed to TLSP 8/25/00

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

European Patent Office  
D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu d  
Fax: +49 89 2399 - 4465

Authorized officer



Kiepe, C  
Tel.+49 89 2399-2423



# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>RCA89928</b>		<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/US99/29938</b>	International filing date (day/month/year) <b>15/12/1999</b>	Priority date (day/month/year) <b>11/01/1999</b>	
International Patent Classification (IPC) or national classification and IPC <b>H04S3/02</b>			
Applicant <b>THOMSON CONSUMER ELECTRONICS, INC. et al.</b>			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the report</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input checked="" type="checkbox"/> Certain defects in the international application</li> <li>VIII <input checked="" type="checkbox"/> Certain observations on the international application</li> </ul>			
Date of submission of the demand  <b>28/07/2000</b>		Date of completion of this report  <b>08.05.2001</b>	
Name and mailing address of the international preliminary examining authority:  <b>European Patent Office</b> <b>D-80298 Munich</b> <b>Tel. +49 89 2399 - 0 Tx: 523656 epmu d</b> <b>Fax: +49 89 2399 - 4465</b>		Authorized officer  <b>Bodin, C-M</b>  Telephone No. <b>+49 89 2399 8952</b> 	

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US99/29938

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):
- Description, pages:**

1-8 as originally filed

**Claims, No.:**

1-8 as originally filed

**Drawings, sheets:**

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US99/29938

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1-8
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-8
Industrial applicability (IA)	Yes:	Claims	1-8
	No:	Claims	

### 2. Citations and explanations see separate sheet

## VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:  
see separate sheet

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
see separate sheet

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/US99/29938

**Re Item V**

- 1 Reference is made to the following documents:

D1 = WO-A-98/36614  
D2 = US-A-5 796 844

- 2 In view of the arguments set out under section VIII below claims 1 - 8 are considered not to be new in view of the disclosure of D1.

Attention is drawn to D1, which document discloses a stereophonic expansion circuit comprising active matrixing means including active amplifiers configured for matrix processing of a stereo sum signal and a stereo difference signal for deriving left and right stereophonic signals.

- 3 From Figures 3 and 5 with related text of the present application it is clear that, according to the invention, the sum signal L+R is modified by boosting its bass and treble frequencies and the difference signal L-R is modified by boosting its midrange frequencies. Since these features are needed in order to solve the problem posed, these features should have been defined in the independent claim.

**Re Item VII**

- 1 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in document D1 is not mentioned in the description, nor is this document identified therein.

**Re Item VIII**

- 1 Although claims 1, 2, 5 and 7 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/US99/29938

matter. The aforementioned claims therefore lack conciseness. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection. Hence, the claims do not meet the requirements of Article 6 PCT.

In order to overcome this objection, the applicant should have filed an amended set of claims defining the relevant subject-matter in terms of a single independent claim in each category followed by dependent claims covering features which are merely optional (Rule 6.4 PCT).

- 2a Page 3 in the description defines that "active matrixing" means "active amplifiers" having predetermined gain, which are coupled in a "matrixing configuration".
- 2b However, the wording "active matrix" is generally unclear in the technical field of the present application. Whereas the application uses the word "active matrix" to imply that the amplifiers are active, the document D2 (col. 1 , lines 23 - 47) defines an "active matrix" as a matrix having matrix coefficients varying in time as defined by one or more control signals.
- 2c Also, the wording "matrixing configuration" is not considered to be a technical term suitable for defining the present invention, since any amplifier can also be considered to be a matrix configuration. (Any equation can be represented by a matrix, and a matrix may also contain any number of zeros, thus leading to a trivial result).
- 2d Thus, the term "active" is ambiguous and thus unclear in the present technical context and the term "matrix" can represent any arrangement or configuration.
- 2e Consequently, the technical feature "active matrixing" used in all the claims makes all the claims unclear (Article 6 PCT).
- 3 The signs "L", "R" , "L-R" and "L+R "are not reference signs as defined in Rule 6.2 (b) PCT and should therefore not have been placed between parenthesis in the claims.

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/US99/29938

- 4 Apparently, the L-R signal should have been referred to as the stereophonic difference signal L-R and the L+R signal should have been referred to as the stereophonic sum signal L+R.
- 5 In claim 6, the "active matrixing amplifiers" have no antecedent. Apparently, "amplifiers" should have been replaced by means (Art. 6 PCT).



## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>RCA89928</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/US 99/ 29938</b>	International filing date (day/month/year) <b>15/12/1999</b>	(Earliest) Priority Date (day/month/year) <b>11/01/1999</b>
Applicant <b>THOMSON CONSUMER ELECTRONICS, INC. et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

## 4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

## 5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

5

☐ None of the figures.

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 99/29938

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H04S3/02

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H04S H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 36614 A (KONINKL PHILIPS ELECTRONICS NV ;PHILIPS NORDEN AB (SE)) 20 August 1998 (1998-08-20) page 1, line 3,4 page 3, line 5 -page 4, line 7 page 4, line 24 -page 6, line 2	1-8
X	EP 0 865 226 A (3S TECH CO LTD) 16 September 1998 (1998-09-16) column 2, line 32-37	1-5
A	column 4, line 32 -column 6, line 21 column 8, line 32 -column 9, line 38 -/--	6-8



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

16 June 2000

Date of mailing of the international search report

28/06/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Zanti, P

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/29938

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 495 637 A (BRUNEY PAUL F) 22 January 1985 (1985-01-22) cited in the application column 1, line 9-18 column 6, line 1 -column 7, line 52 column 8, line 60 -column 11, line 11 -----	1-8

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

PCT/US 99/29938

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9836614	A	20-08-1998	US 5892831 A	06-04-1999
			EP 0923846 A	23-06-1999
EP 0865226	A	16-09-1998	JP 10271600 A	09-10-1998
US 4495637	A	22-01-1985	BR 8303941 A	28-02-1984
			EP 0100153 A	08-02-1984
			US 4567607 A	28-01-1986
			JP 59037800 A	01-03-1984



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> :

H04S 3/02

A1

(11) International Publication Number:

WO 00/42818

(43) International Publication Date:

20 July 2000 (20.07.00)

(21) International Application Number: PCT/US99/29938

(22) International Filing Date: 15 December 1999 (15.12.99)

(30) Priority Data:

60/115,324

11 January 1999 (11.01.99)

US

(71) Applicant (for all designated States except US): THOMSON CONSUMER ELECTRONICS, INC. [US/US]; 10330 North Meridian Street, Indianapolis, IN 46290-1024 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): HOOVER, Alan, Anderson [US/US]; 63937 Cranbrook Drive, Indianapolis, IN 46240-3623 (US).

(74) Agents: TRIPOLI, Joseph, S. et al.; Thomson Multimedia Licensing Incorporated, P.O. Box 5312, Princeton, NJ 08543 (US).

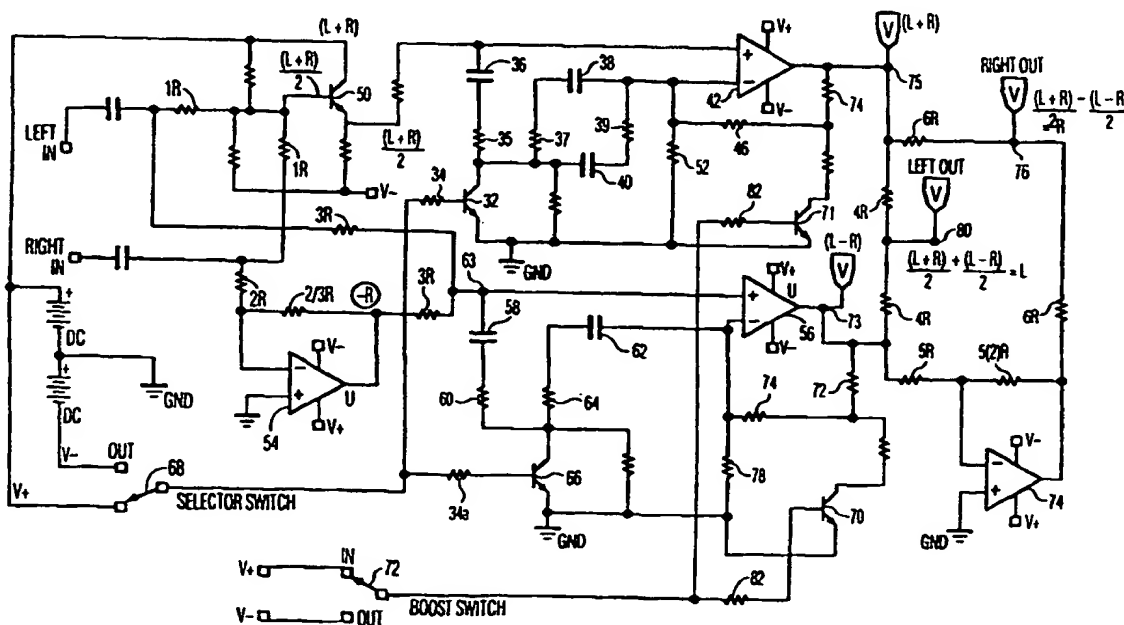
(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With international search report.

Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: A STEREOPHONIC SPATIAL EXPANSION CIRCUIT WITH TONAL COMPENSATION AND ACTIVE MATRIXING



## (57) Abstract

In a stereophonic expansion circuit, the (L+R) sum signal is spectrally modified by increasing the bass and treble frequencies relative to the midrange so as to compensate for a midrange frequency boost in the (L-R) difference signal. The stereophonic expansion effect and manipulation of the signal parameters are produced by active matrixing amplifiers.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

# INTERNATIONAL SEARCH REPORT

Intern. Patent Application No  
PCT/US 99/29938

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H04S3/02

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H04S H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 36614 A (KONINKL PHILIPS ELECTRONICS NV ; PHILIPS NORDEN AB (SE)) 20 August 1998 (1998-08-20) page 1, line 3,4 page 3, line 5 -page 4, line 7 page 4, line 24 -page 6, line 2	1-8
X	EP 0 865 226 A (3S TECH CO LTD) 16 September 1998 (1998-09-16) column 2, line 32-37	1-5
A	column 4, line 32 -column 6, line 21 column 8, line 32 -column 9, line 38 --- -/--	6-8

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*G\* document member of the same patent family

Date of the actual completion of the international search

16 June 2000

Date of mailing of the international search report

28/06/2000

Name and mailing address of the ISA

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Fax: (+31-70) 340-3016

Authorized officer

Zanti, P

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 99/29938

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 4 495 637 A (BRUNEY PAUL F)  22 January 1985 (1985-01-22)  cited in the application  column 1, line 9-18  column 6, line 1 -column 7, line 52  column 8, line 60 -column 11, line 11  -----</p>	1-8



# INTERNATIONAL SEARCH REPORT

Information on patent family members

Inter: International Application No

PCT/US 99/29938

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9836614 A	20-08-1998	US 5892831 A EP 0923846 A	06-04-1999 23-06-1999
EP 0865226 A	16-09-1998	JP 10271600 A	09-10-1998
US 4495637 A	22-01-1985	BR 8303941 A EP 0100153 A US 4567607 A JP 59037800 A	28-02-1984 08-02-1984 28-01-1986 01-03-1984